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350-00006-04

GOODWE
your solar engine

# SS/DS SERIES USER MANUAL

GOODWE
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SOLAR INVERTER

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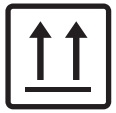
# 1 Symbols

| | | | |
|---|---|---|---|
| | Caution!<br>Failure to observe a warning indicated in this manual may result in injury. | | Components of the product can be recycled. |
| | Danger of high voltage and electric shock! |  | This side up; the package must always be transported, handled and stored in such a way that the arrows always point upwards. |
| | Danger of hot surface! | | No more than six (6) identical packages may be stacked on each other. |
| | Product should not be disposed as household waste. | | The package/product should be handled carefully and never be tipped over or slung. |
| | CE Mark | | Keep dry; the package/product must be protected from excessive humidity and must be stored under cover. |
| | Signals danger due to electrical shock and indicates the time (5 minutes) to allow after the inverter has been turned off and disconnected to ensure safety in any installation operation. | | |

# 2 Safety

The SS/DS series inverter of Jiangsu GoodWe Power Supply Technology Co. Ltd. (hereinafter referred to as GoodWe) strictly conforms to related safety rules in design and test. Safety regulations relevant to the location shall be followed during installation, commissioning, operation and maintenance. Improper operation may have a risk of electric shock or damage to equipment and property.(SS: Single-MPPT,Single-Phase; DS: Dual-MPPT, Single-Phase)

- Installation, maintenance and connection of inverters must be performed by qualified personnel, in compliance with local electrical standards, regulations and the requirements of local power authorities and/or companies.
- To avoid electric shock, DC input and AC output of the inverter must be terminated at least 5 minutes before performing any installation or maintenance.
- The temperature of some parts of the inverter may exceed 60°C during operation. To avoid being burnt, do not touch the inverter during operation. Let it cool before touching it.
- Keep children away from inverter.
- Do not open the front cover of the inverter. Apart from performing work at the wiring terminal (as instructed in this manual), touching or changing components without authorization may cause injury to people, damage to inverters and annulment of the warranty.
- Static electricity may damage electronic components. Appropriate method must be adopted to prevent such damage to the inverter; otherwise the inverter may be damaged and the warranty annulled.

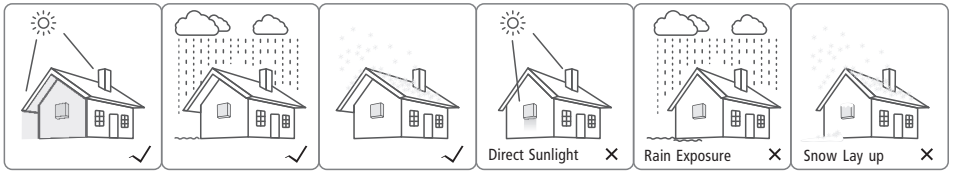


- Ensure the output voltage of the proposed PV array is lower than the maximum rated input voltage of the inverter; otherwise the inverter may be damaged and the warranty annulled.
- When exposed to sunlight, the PV array generates dangerous high DC voltage. Please operate according to our instructions, or it will result in danger to life.
- PV modules should have an IEC61730 class A rating.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- Completely isolate the equipment should : switch off the DC switch, disconnect the DC terminal, and disconnect the AC terminal or AC breaker.
- Prohibit inserting or pulling the AC and DC terminals when the inverter is electrified.

# 3 Installation

## 3.1 Mounting Instruction

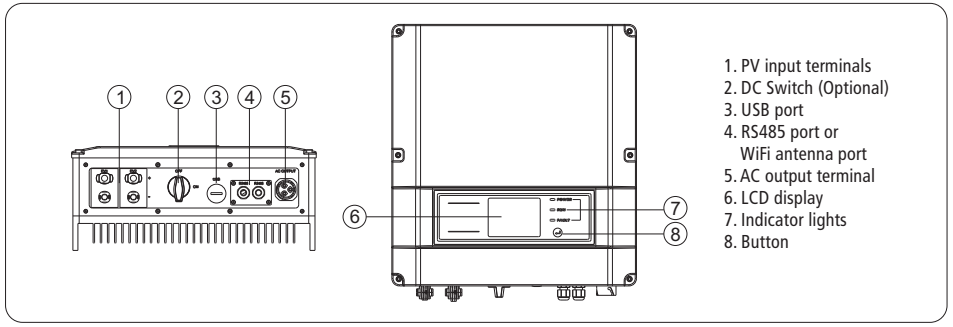
- In order to achieve optimal performance, the ambient temperature should be lower than 45 °C.
- For the convenience of checking the LCD display and possible maintenance activities, please install the inverter at eye level.
- Inverters should NOT be installed near inflammable and explosive items. Any strong electro-magnetic equipment should be kept away from installation site.
- Product label and warning symbol shall be clear to read after installation.
- Please install inverter in the place where is not exposed to direct sunlight, rain and snow.



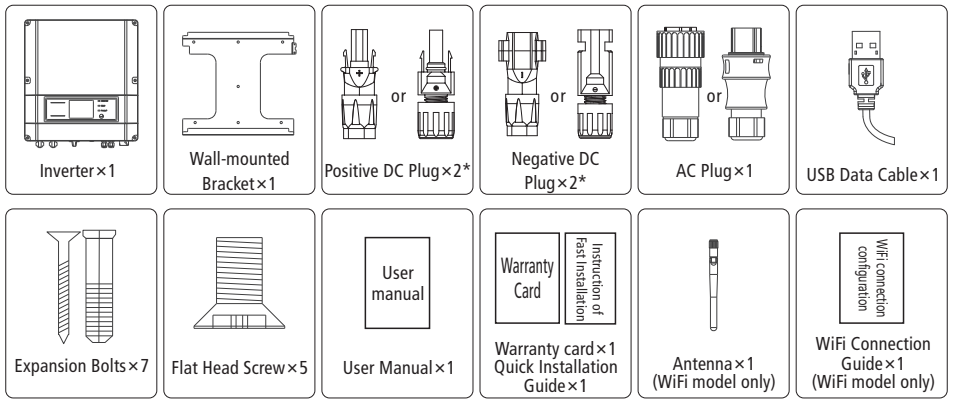

## 3.2 Inverter Overview and Package

Check the scope of delivery for completeness and any visible damage.

### 3.2.1 Inverter Overview



## 3.2.2 Package




*For GW1500-SS、GW2000-SS the number is 1.

## 3.3 Inverter Installation

### 3.3.1 Selecting the installation location

The following must be considered when selecting the best location for an inverter:

- The mount and installation method must be appropriate for the inverter's weight and dimensions.
- The location must be well ventilated and sheltered from direct sunlight.
- The inverter must be installed vertical or with a backward tilt less than 15°. No sideways tilt is allowed. The connection area must point downwards. Please refer to Figure 3.3.1-1.

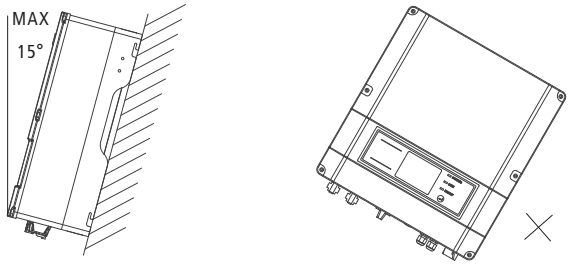



Figure 3.3.1-1

To allow dissipation of heat, and for convenience of dismantling, clearances around the inverter must be at least:

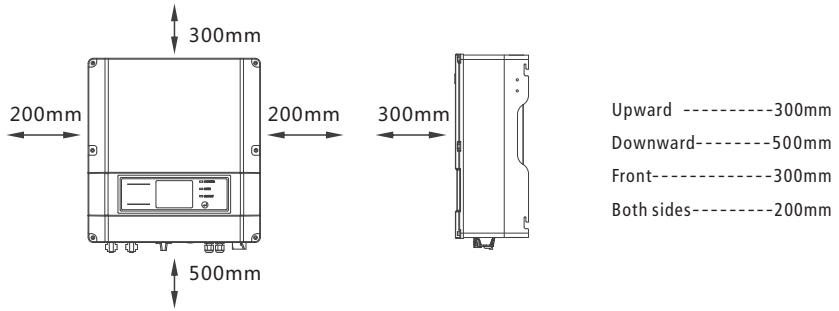



Figure 3.3.1-2

### 3.3.2 Mounting Procedure

(1) Use the wall-mounted bracket as a template and drill 7 holes in the wall, 10 mm in diameter and 80 mm deep. The inverter size of 1500W, 2000W, 3000W models please refer to Figure 3.3.2-1, and the size of other models refer to Figure 3.3.2-2.

(2) Fix the wall mounting bracket on the wall using the expansion bolts in the accessories bag.

(3) Hold the inverter by the groove on the heat sink please refer to Figure 3.3.2-3.

(4) Place the inverter on the wall-mounted bracket please refer to Figure 3.3.2-4, 3.3.2-5, 3.3.2-6.

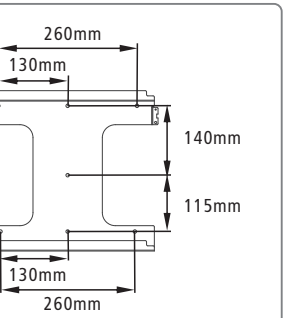



Figure 3.3.2-1

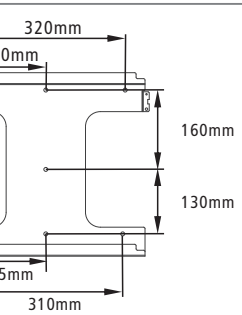



Figure 3.3.2-2

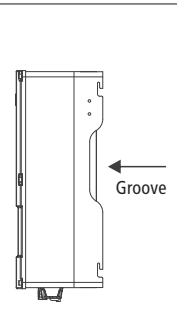



Figure 3.3.2-3

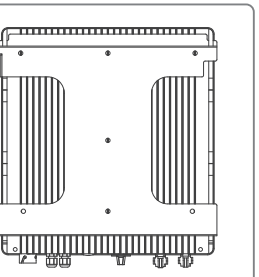


Figure 3.3.2-4

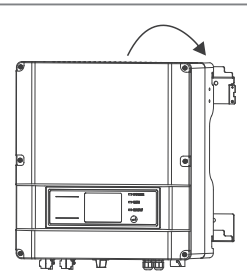


Figure 3.3.2-5

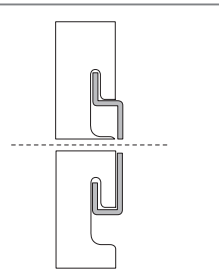


Figure 3.3.2-6

## 3.4 Electrical Connection

### 3.4.1 Connection to grid (AC side Connection)

(1) Check the grid voltage and frequency if it can comply with the required voltage and frequency of inverter connection.

(2) Add breaker or fuse to AC side, the specification should be more than 1.25 times of rated AC output current.

(3) The PE line of inverter should be connected to the earth, make sure the impedance of neutral wire and earth wire less than 10 ohm.

(4) Disconnect the breaker or fuse between the inverter and the utility.

(5) Connect the inverter to the grid as follows:

There are two AC connector brands for inverter, VACONN and WIELAND. Please refer to Figure 3.4.1-1

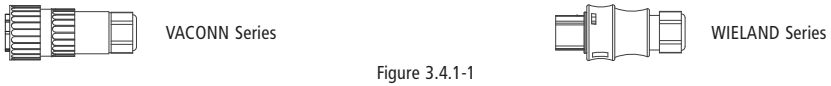



Figure 3.4.1-1

Installation instruction of VACONN series please refer to Figure 3.4.1-2.

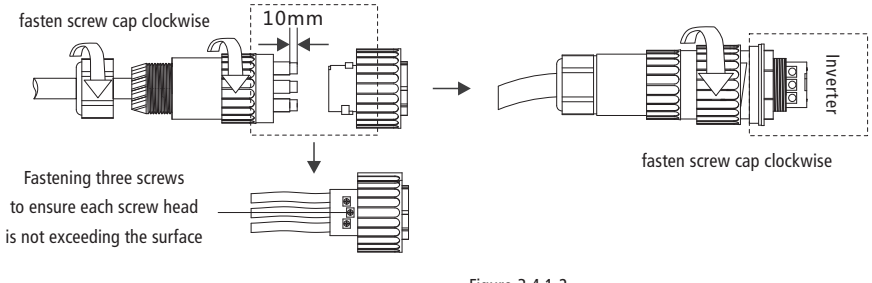



Figure 3.4.1-2

Installation instruction of WIELAND series please refer to Figure 3.4.1-3.

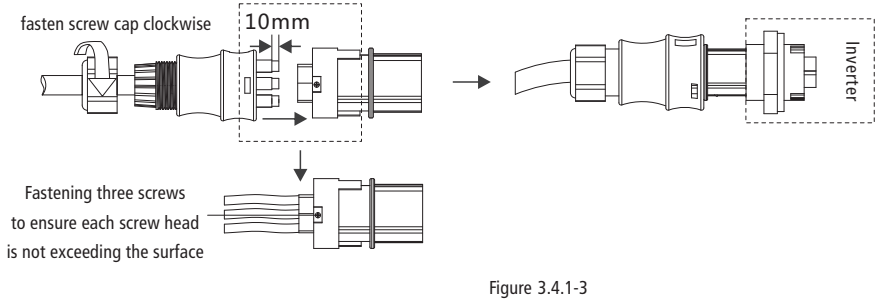



Figure 3.4.1-3

Cable specification of AC side please refer to Figure 3.4.1-4.

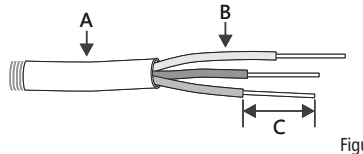



Figure 3.4.1-4

| Grade | Description | Value |
|---|---|---|
| A | O.D. | 10~12mm |
| B | Conductor Material Sectional Area | 2.5~4mm$^2$ |
| C | Bare Wire Length | 10mm around |

### 3.4.2 DC Side Connection

(1)Before connecting the PV strings, please ensure the plug connectors have the correct polarity. Incorrect polarity could permanently damage the unit.

(2)The open circuit voltage of the PV strings can not exceed the maximum input voltage of the inverter.

(3)Only DC connectors provided by GoodWe are permitted to use.

(4)The positive and negative pole is forbid to connect PE wire (Ground wire), otherwise, it will cause damage to inverter.

(5)Don't connect positive or negative pole of PV string to PE wire. Otherwise, it will cause damage to inverter.

There are two types of DC connectors, SUNCLIX and MC4 series. Please refer to Figure 3.4.2-1.

Figure 3.4.2-1

Installation instruction of SUNCLIX please refer to Figure 3.4.2-2.

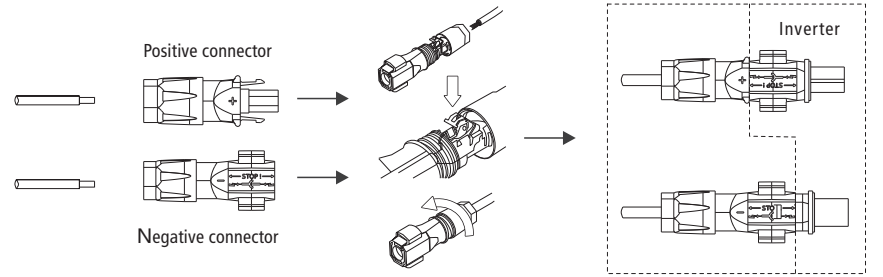



Figure 3.4.2-2

Installation instruction of MC4 please refer to Figure 3.4.2-3.

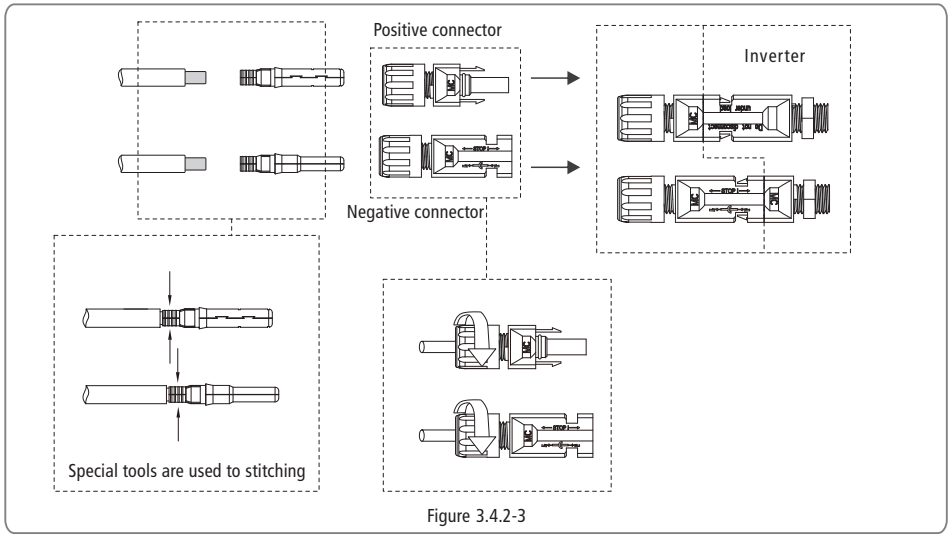
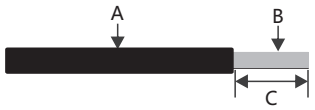



Figure 3.4.2-3

DC Cable specification please refer to Figure 3.4.2-4.




| Grade | Description | Value |
|---|---|---|
| A | O.D. | 4~5mm |
| B | Conductor Material Sectional Area | 2.5~4mm$^2$ |
| C | Bare Wire Length | 7mm around |

Figure 3.4.2-4

For better inverter IP65 protection from water and dust, all pairs of DC connectors provided in accessory bags should be used. However, if there still extra pairs unused after installation, please make sure the unused pairs still be connected to the inverter with exposed wires compressed, the exposed wires should be at least 15mm outside the DC connector. Please refer to Figure 3.4.2-5.

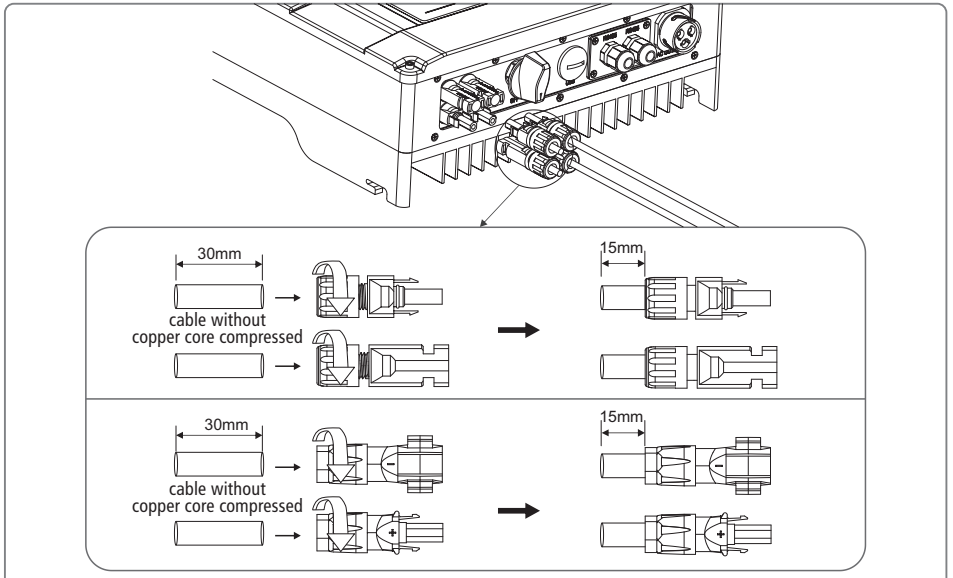



Figure 3.4.2-5

## 3.4.3 USB Communication

USB cable should be connected as Figure 3.4.3-1

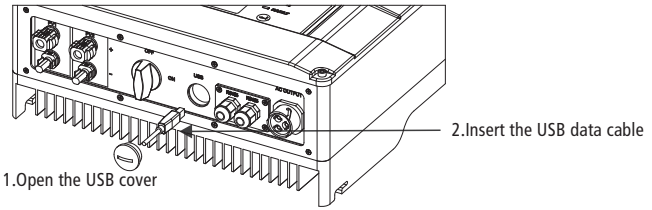



Figure 3.4.3-1

If you need USB monitoring solution, please download EzExplorer software at www.goodwe.com.cn.

## 3.4.4 RS485 Communication

This function is only applied to inverters with RS485.

The RS485 interface is used to connect EzLogger, and the maximum total length of all connecting cables should not exceed 800m.

RS485 connection please refer to Figure 3.4.4-1.

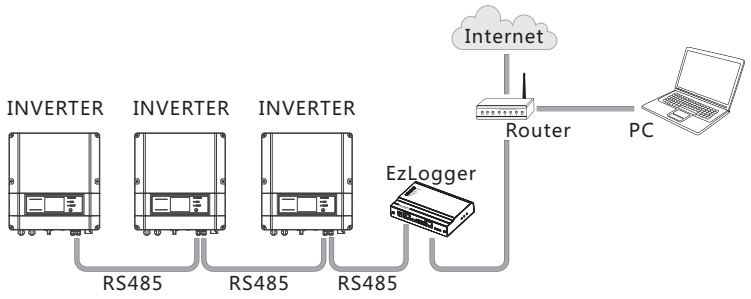



Figure 3.4.4-1

( 1 ) Connection procedure:

●Remove the waterproof kit of RS485 cover with screwdriver.

●Remove the screw cap of the cable gland.

●Remove the one-hole sealing ring.

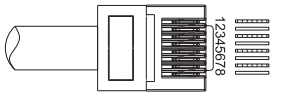
●Put the RS485 cable through the components in this order: screw cap, one-hole sealing ring, insulation body and sheet metal parts.

●Compress 8 cores of cable into the corresponding interface of crystal head. Please refer to Figure 3.4.4-2.

●Connect the compressed crystal head to the communication interface of inverter.

●Fasten the RS485 waterproof kit to inverter.

●Fasten the screw cap of the cable gland.




| PIN | Color of the wire | Function |
|---|---|---|
| 1 | Orange and white | Reserved |
| 2 | Orange | Reserved |
| 3 | Green and white | RX_RS485B |
| 4 | Blue | GND |
| 5 | Blue and white | GND |
| 6 | Green | RX_RS485A |
| 7 | Brown and white | TX_RS485B |
| 8 | Brown | TX_RS485A |

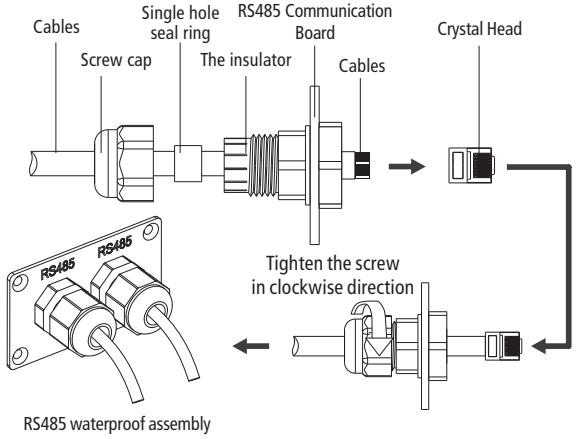



Figure 3.4.4-2

(2) Connect the inverter to EzLogger with RS485 cable, and EzLogger to switch or router with CAT5E STP cable.

## 3.4.5 WiFi Communication

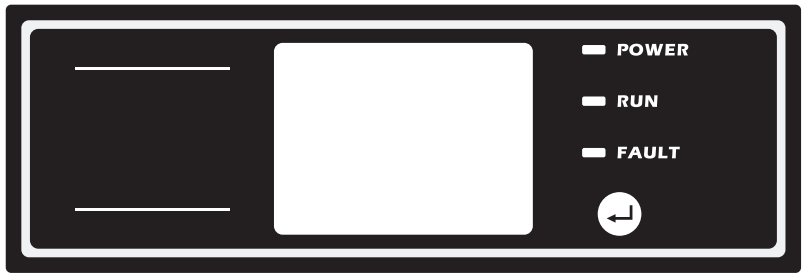
The WiFi communication function is only applied to WiFi models, the detailed configuration instruction can be referred to WiFi Configuration in the accessory box.

After configuration, please browse http://www.goodwe-power.com to create PV station.



# 4 System Operation

## 4.1 Indicator Lights




Indicator lights in Yellow/Green/Red correspondently refer to POWER/RUN/FAULT.

Yellow: Light on indicates the inverter is electrified.

For WiFi models, Light flashes on 0.5sec off 0.5sec indicates the WiFi module doesn't connect to the WiFi router; Light flashed on 2.5sec off 2.5sec indicates the WiFi module connect to the WiFi router but cannot receive data from Web Server; Always on indicates communication between Web Server is ok.

Green: Light on indicates the inverter is feeding power. Light off indicates the inverter is not generating power at the moment.

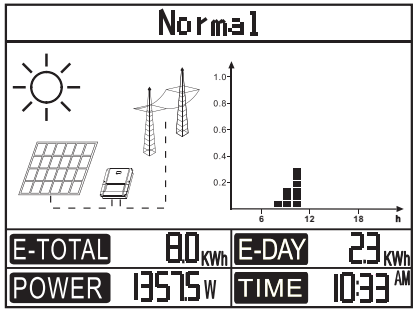
Red: Light on indicates abnormal conditions, while light off indicates normal condition.

## 4.2 User interface and use of the display

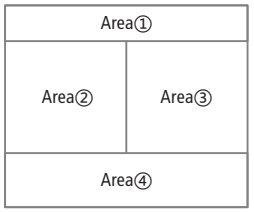
Set Safety Country :

If display shows 'Configure Safety', then long press (2S) the key to enter the second level menu. Short press to browse the safety country available. Choose suitable safety country according to the location of installation. The inverter will store the chosen safety country after 20 seconds of no operation.

(1) A schematic of the display screen is shown as below:



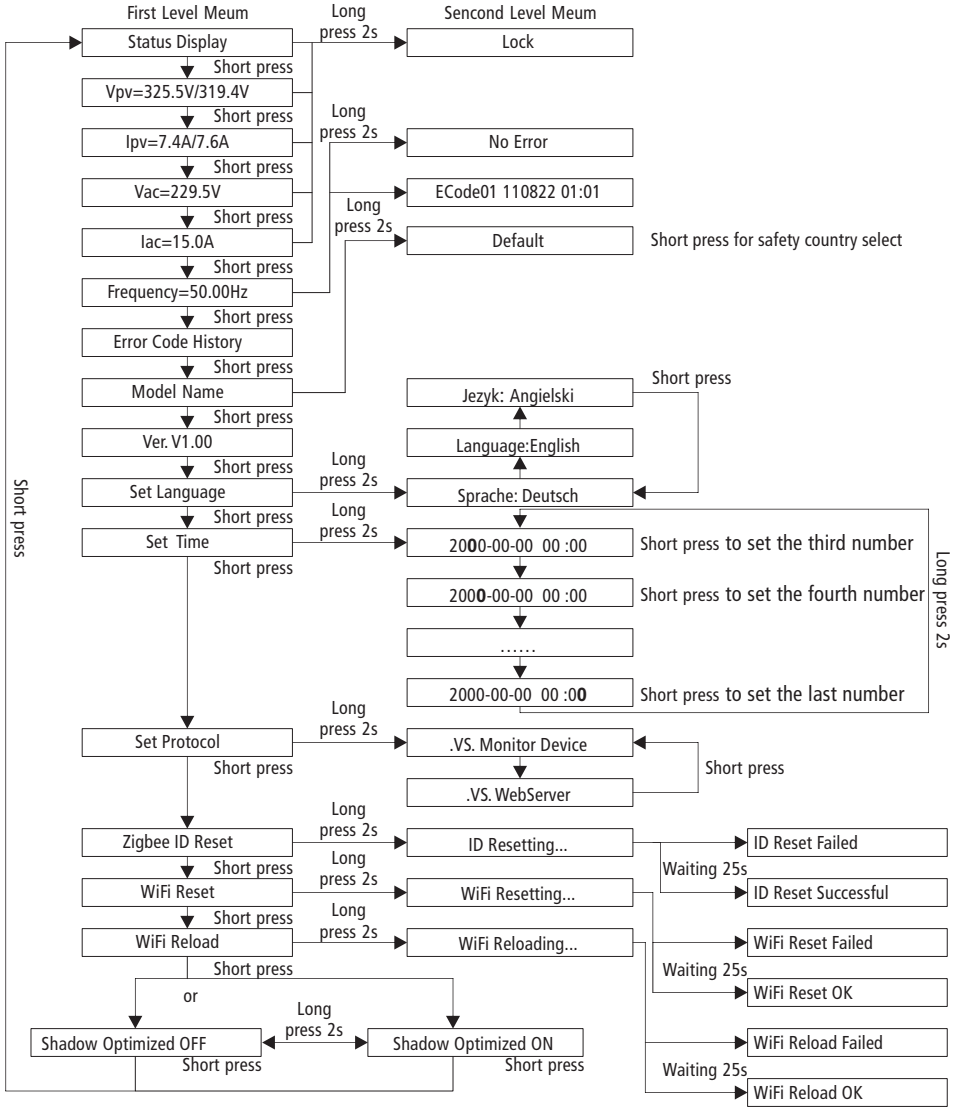

Display area is divided as follows:




(2) Display area

Area①---Working status information

- This area displays the status information. "Waiting" indicates the inverter is standby for power generation; "Checking **S" (checking time is based on safety, and varies from country to country) indicates the inverter is self-checking, counting down and preparing for power generation. "Normal" indicates the inverter is generating power. If any condition of the system is abnormal, the screen will display an error message. Refer to Table 4.3.
- Through key operation, the screen can display different information such as operation parameters and power generation status in this area. There are two levels of menus, and the flow chart of first level menu is shown below:




●Menu display can be controlled by pressing the key, and holding the key for a while will enter into the submenu.

Area ②:

●The electrical connection status on DC side and the AC side are represented by dashed lines and full lines. Flashing dashed line on DC side indicates PV panel is feeding power to the inverter. Nothing shows on AC side means grid is not available.

Full line on AC side means grid is available, but the inverter is not generating power at the moment. Flashing dashed line on AC side indicates the inverter is feeding power to the grid network.

Area ③:

●Histogram is used to represent the hourly average power generation from 4 a.m. to 8 p.m. for the day. The average power at full column represents the nominal power of system.



Area ④:

●This area shows total power generation, daily power generation, and the power generated at present and time information, described as follow:

| Part | Description |
|---|---|
| E-TOTAL | Gross power generation after first time use of inverter. The initial unit is "kWh"; when power generation exceeds 9999.9kWh, the unit changes to "MWh". |
| E-DAY | Daily power generation |
| POWER | Present power generation of the system |
| TIME | Current system time |

(3) Use of the display

There are 2 modes of button operation: Short press and long press.

(4) Use of the display and LCD display

The display allows accessing the configuration of the basic parameters. All the language, time and country settings can be configured by buttons. The menu, shown in the LCD display area has two levels of menu. Short and long key presses will take you between menus and through each menu. Items in the first level menu that have no second level are locked. For these items, when the key is pressed for two seconds, the LCD will display the word "Lock" followed by data relating to the first level menu item. The locked menu can only be unlocked under system mode switching, fault occurrence or key operation.

In all levels of menu, if no action is taken for 20 seconds, the backlight of the LCD display will switch off, the display will automatically revert to the first item of the first level menu, and any modifications made to the data will be stored into internal memory.

(5) Menu Introduction

●When the PV panel is feeding power to the inverter, the screen shows the first-level menu.

●The initial display is the first item of the first level menu, and the interface displays the current status of the system. It shows "Waiting" in the initial state; it shows "Normal" during power generation mode; if there is something wrong with the system, an error message is shown. Please refer to Table 4.3.

View PV voltage, PV current, grid voltage, current and frequency:

●Short press the key to enter the Vpv menu which displays the PV voltage in "V".

●Short press the key to enter the Ipv menu which displays the PV current in "A".

●Short press the key to enter the Vac menu which displays the grid voltage in "V".

●Short press the key once more to enter the Iac menu which displays the grid current in "A".

●Short press the key once more to enter the Frequency menu which displays the grid frequency in "Hz".

●View Error code

Short press the key once more to enter the Error Code History menu.

Long press (2S) the key to enter the second level menu of error detection. The last three inverter error records will be shown by short pressing the key in this second level menu. The records include error codes (ECodeXX) and error times (110316 15:30). Error codes and their related faults can be found in Table 4.3.

●View model name and reconfigure safety country

From the error code history item in the first level menu, short press the key once to see model name.

If you want to change the safety country, please hold the key for 2 seconds, then the LCD screen will go to the second level menu. In the second level menu, short press the key can change the safety country.

After choosing the suitable safety country, the inverter will store the chosen the safety country if no operation within 20 seconds.

If there is no EXACTLY proper country code, please choose '50Hz Grid Default' or '60Hz Grid Default' accordingly.

●View software version

From the model name item in the first level menu, short press the key once to see software version.

The current software version can be shown in this menu.

Settings:

●Set language:

Short press the button to enter the Set Language menu. Long press (2S) the key to enter the second level menu. Short press to browse the languages available. The inverter will store the chosen language after 20 seconds of no operation.

●Set time:

From the first level Set Language menu, short press the key to enter the Set Time menu.

Long press (2S) the key to enter the second level menu. The initial display is "2000-00-00 00:00", in which the first four numbers represent the year (e.g. 2000~2099); the fifth and sixth numbers represent the month (e.g. 01~12); the seventh and the eighth numbers represent the date (e.g. 01~31). The remaining numbers represent the time.

Short press to increase the number in current location, and long press to move the cursor to next position. The inverter will store the time after 20 seconds without any key operation, and the LCD will automatically return to the main menu and the backlight will switch off.

●Set protocol:

The function is only used for service personnel, set wrong protocol could lead to communication failure.

From the first level Set Time menu, short press the key once to enters set protocol display menu. Press the key for 2S to enter submenu. The circulatory submenu including two protocols can be found. The protocol can be chosen by short pressing the key. The inverter will store the chosen protocol without any action within 25S and LCD display will automatically return to main menu when the backlight is off.

●MPPT function for Shadow:

The default setting for shadow optimizer is disabled.

Please enable shadow optimizer when there is shadow on PV panel. The function could help the system generate more power under shadow condition.

Please do not enable the function when there's no shadow on panel. Otherwise it could lead to generate less power.

Press the key until enter Shadow Optimize menu. When it shows "Shadow Optimized Off", it means the MPPT function for shadow is switched off. Press the key 2S to enable the function. If it shows "Shadow Optimized On" it means the shadow optimizer is on. Press the key 2S to disable the function.

●70% Rated power limit

The function could only be available for inverter in German. It could only be used by network operator. Otherwise it will cause the PV plant generated reduced.

Press the key until enter 70% rated power menu. If it shows "70% Rated Enable" it means the function to limit the inverter working under 70% rated output is switched off. Pressing key 2S will switch this function on. If it shows "Recover Rated Power" it means inverter is working under 70% of rated output power. Press key 2S will recover inverter to 100% of its rated output power.

(6) Operation of Display when commissioning.

When the input voltage reaches the inverter turn-on voltage, the LCD starts to work, the yellow light is on and the LCD displays "Waiting". More information will be displayed within a few seconds. If the inverter is connected to the grid, "Checking 30" will be displayed and a countdown will commence from 30 seconds. When it shows "00S" you will hear the relay triggered 4 times. The LCD will then display "Normal". The instant power output will be shown at the left bottom of the LCD.



## 4.3 Error code

An error message will be displayed on the LCD if a fault occurs.

| Error Code | Error message | Description |
|---|---|---|
| 01 | SPI Failure | Internal communication failure |
| 02 | EEPROM R/W Failure | Eeprom device failure |
| 03 | Fac Failure | Grid frequency out of permissible range |
| 07 | Relay-Check Failure | Relay self-checking failure |
| 13 | DC Injection High | Overhigh DC current injection |
| 14 | Isolation Failure | Ground insulation impedance is too low |
| 15 | Vac Failure | Grid voltage out of permissible range |
| 17 | PV Over Voltage | Overvoltage at DC input |
| 19 | Over Temperature | Over temperature on the case |
| 21 | DC Bus High | Overhigh BUS voltage |
| 22 | Ground I Failure | Overhigh ground residual current |
| 23 | Utility Loss | Utility is unavailable |
| 31 | AC HCT Failure | Output current sensor failure |
| 32 | GFCI Failure | Detection circuit of ground residual current failure |

## 4.4 WiFi Reset & WiFi Reload

The two functions are only available for WiFi model inverters.

WiFi reload function is used to change the WiFi configuration to default value. Please configure the WiFi again as 3.4.5 after using the function.

Press the key until the LCD displays "WiFi Reset", then long press (2S) until the LCD displays "WiFi Resetting…". Stop pressing and wait for the screen showing "WiFi Reset Successful" or "WiFi Reset Failed".

Press the key until the LCD displays "WiFi Reload", then long press (2S) until the LCD displays "WiFi Reloading…". Stop pressing and wait for the screen showing "WiFi Reload Successful" or "WiFi Reload Failed".

# 5 Troubleshooting

In most situations, the inverter requires very little maintenance. However, if the inverter is not working properly, please try the following troubleshooting solutions:

●When a problem occurs, the red (fault) LED indicator on the front panel will light up and the LCD screen will display the type of fault. The following table lists error messages and the solutions for associated faults.

| Display | | Troubleshooting |
|---|---|---|
| System failure | Isolation Failure | 1.Disconnect DC switch, take off DC connector, Check the impedance between PV (+) & PV (-) to earth.<br>2.If impedance is less than 100 kΩ, please check the insulation of PV string wiring to the earth.<br>3.If impedance is larger than 100 kΩ, please contact local service office.<br>4.Take off AC connector, measure the impedance between neutral and PE. If it is larger than 10 kΩ, please check AC wiring. |
| | Ground I Failure | 1.Disconnect DC switch, check the insulation of PV string wiring to earth.<br>2.Reconnect the DC switch again.<br>3.If the problem still exits, please call the local service office. |
| | Vac Failure | 1.Disconnect the DC switch, taking off AC connector, measuring the voltage between line and neutral in connector, make sure if it conforms to the grid-connected specification of inverter.<br>2.If it does not, please check grid wiring.<br>3.If it does, please connect AC connector, reconnect DC switch, inverter will connect grid automatically. If the problem still exits, please call the local service office. |
| | Fac Failure | 1.The PV Inverter will automatically restart if the Fac returns to normal.<br>2.If the problem still exits, please call the local service office. |
| | Utility Loss | 1.Disconnect the DC switch, taking off AC connector, measure the voltage between line and neutral n connector, make sure if it conforms to the grid-connected specification of inverter.<br>2.If it does not, please check if the distribution switch is connected and the grid is normal.<br>3.If it does, reconnect AC connector and DC connector; If the problem still exits, please call the local service office. |
| | PV Over Voltage | 1.Disconnect the DC switch, take off DC connector, check PV string voltage, make sure if it exceeds the input voltage in inverter specification.<br>2.If it does, please reconfigurate PV panel string.<br>3.If the problem still exits, please call the local service office. |
| | Over Temperature | 1.Please check if installation position conforms to the specification.<br>2.Try to lower the surrounding temperature.<br>3.Move the inverter to vents or alter the installation position.<br>4.If the problem still exits, please call the local service office. |
| Inverter failure | Relay-Check Failure | 1.Disconnect the DC connector.<br>2.Reconnect the DC connector.<br>3.If the problem still exits, please call the local service office. |
| | DC Injection High | |
| | EEPROM R/W Failure | |
| Inverter failure | SCI Failure | 1.Disconnect the DC connector.<br>2.Reconnect the DC connector.<br>3.If the problem still exits, please call the local service office. |
| | SPI Failure | |
| | DC Bus High | |
| | GFCI Failure | |
| | No display | 1.Disconnect the DC switch, take off DC connector, measure the voltage of PV string.<br>2.Plug in DC connector, and reconnect DC switch.<br>3.If the voltage is less than 125V, please check the PV string configuration.<br>4.If the voltage is higher than 125V and still no display, please contact local service office. |

Note: When sunlight is insufficient, the PV Inverter may continuously start up and shut down automatically due to insufficient power generated by the PV panels, which would not lead to inverter damage. If the problem still exits, please call the local service office.

# 6 Technical Parameters

| Model | GW1500-SS | GW2000-SS | GW3000-SS | GW3600-SS | GW4000-SS | GW4600-SS |
|---|---|---|---|---|---|---|
| **DC input Data** | | | | | | |
| * Max. DC power(W) | 1800 | 2300 | 3200 | 4200 | 4600 | 5400 |
| Max. DC voltage (V) | 450 | 500 | 500 | 580 | 580 | 580 |
| MPPT voltage range (V) | 125~450 | | | 125~550 | | |
| Starting voltage (V) | 125 | | | 125 | | |
| Max. DC current (A) | 12 | 15 | 18 | 20 | 20 | 20 |
| DC overcurrent protection(A) | 21 | 21 | 23 | 30 | 30 | 30 |
| No. of DC connectors | 1 | 1 | 2 | 2 | 2 | 2 |
| No. of MPPTs | 1 | | | 1 | | |
| DC overvoltage category | Category Ⅱ | | | | | |
| DC connector | SUNCLIX / MC4 (optional) | | | | | |
| **AC Output Data** | | | | | | |
| Norminal AC power(W) | 1500 | 2000 | 3000 | 3600 | 4000 | 4600 |
| Max. AC power(W) | 1650 | 2000 | 3000 | 4000 | 4400 | 5100 |
| Max. AC current(A) | 8 | 10 | 15 | 16 | 22 | 25 |
| AC overcurrent protection(A) | 18.5 | 18.5 | 26.5 | 37 | 37 | 43 |
| Norminal AC output | 50/60Hz; 230Vac | | | | | |
| AC output range | 45~55Hz/55~65Hz; 180~270Vac | | | | | |
| THDi | <1% | | | | | |
| Power factor | 0.9 leading~0.9 lagging | | | | | |
| Grid connection | Single Phase | | | | | |
| AC overvoltage category | Category Ⅲ | | | | | |
| **Efficiency** | | | | | | |
| Max. efficiency | 97.0% | 97.0% | 97.0% | 97.8% | 97.8% | 97.8% |
| Euro efficiency | >96% | >96% | >96.5% | >97.4% | >97.4% | >97.4% |
| MPPT adaptation efficiency | >99.5% | | | | | |
| **Protection** | | | | | | |
| Residual current monitoring unit | Integrated | | | | | |
| Anti-islanding protection | Integrated | | | | | |
| DC switch | Integrated(optional) | | | | | |
| AC over current protection | Integrated | | | | | |
| Insulation monitoring | Integrated | | | | | |
| **Certifications&Standards** | | | | | | |
| Grid regulation | VDE-AR-N 4105, AS4777.2&.3, RD1699, G83/2, IEC62109-2, VDE0126-1-1+A1, EN50438 | | | | | |
| Safety | According to IEC62109-1&-2, AS3100 | | | | | |
| EMC | EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61000-3-2, EN 61000-3-3 | | | | | |
| **General Data** | | | | | | |
| Dimensions (WxHxD) | 355*380*134mm | | | 390*417*142mm | | |
| Weight (kg) | 12 | 12 | 13 | 18 | 18 | 18 |



| | |
|---|---|
| Mounting | Wall Mounting |
| Ambient temperature range | -25～60°C (>45°C derating) |
| Relative humidity | 0～95% |
| Moisture location category | 4K4H |
| Max. operating altitude | 2000m |
| Protection degree | IP65 |
| Environment category | Outdoor & indoor |
| External environment pollution degree | Grade1、2、3 |
| Topology | Transformerless |
| Night power consumption(W) | <1 |
| Cooling | Natural Convection |
| Noise emision(dB) | <25 |
| Display | 4.0'' LCD |
| Communication | USB2.0 ; RS485 or WiFi |
| Standard warranty(years) | 5/10/15/20/25(optional) |

| Model | GW3600-DS | GW4200-DS | GW4600-DS |
|---|---|---|---|
| **DC input Data** | | | |
| * Max. DC power(W) | 3800 | 4600 | 5400 |
| Max. DC voltage (V) | 580 | | |
| MPPT voltage range (V) | 125~550 | | |
| Starting voltage (V) | 125 | | |
| Max. DC current (A) | 10/10 | 15/15 | 15/15 |
| DC overcurrent protection(A) | 21 | 21 | 21 |
| No. of DC connectors | 2 | | |
| No. of MPPTs | 2 (can parallel) | | |
| DC overvoltage category | Category Ⅱ | | |
| DC connector | SUNCLIX / MC4 (optional) | | |
| **AC Output Data** | | | |
| Norminal AC power(W) | 3600 | 4200 | 4600 |
| Max. AC power(W) | 3600 | 4400 | 5100 |
| Max. AC current(A) | 18 | 21 | 25 |
| AC overcurrent protection(A) | 35 | 43 | 43 |
| Norminal AC output | 50/60Hz; 230Vac | | |
| AC output range | 45~55Hz/55~65Hz; 180~270Vac | | |
| THDi | <1.5% | | |
| Power factor | 0.9 Leading~0.9 Lagging | | |
| Grid connection | Single phase | | |
| AC overvoltage category | Category Ⅲ | | |

| Model | GW3600-DS | GW4200-DS | GW4600-DS |
|---|---|---|---|
| **Efficiency** | | | |
| Max. efficiency | 97.6% | 97.8% | 97.8% |
| Euro efficiency | >97% | >97.4% | >97.4% |
| MPPT adaptation efficiency | | >99.5% | |
| **Protection** | | | |
| Residual current monitoring unit | | Integrated | |
| Anti-islanding protection | | Integrated | |
| DC switch | | Integrated(optional) | |
| AC over current protection | | Integrated | |
| Insulation monitoring | | Integrated | |
| **Certifications&Standards** | | | |
| Grid regulation | VDE-AR-N 4105, AS4777.2&.3, RD1699, IEC62109-2, VDE0126-1-1+A1, EN50438 | VDE-AR-N 4105, AS4777.2&.3, RD1699, G59/3, IEC62109-2, VDE0126-1-1+A1, EN50438 | VDE-AR-N 4105, AS4777.2&.3, MEA, PEA RD1699, G59/3, IEC62109-2, VDE0126-1-1+A1, EN50438, |
| Safety | IEC62109-1&-2, AS3100 | | |
| EMC | EN 61000-6-1,EN 61000-6-2,EN 61000-6-3,EN 61000-6-4, EN 61000-3-11, EN 61000-3-12 | | |
| **General Data** | | | |
| Dimensions (WxHxD) | 390*417*165mm | | |
| Weight (kg) | 20 | | |
| Mounting | Wall Mounting | | |
| Ambient temperature range | -25～60°C (>45°C derating) | | |
| Relative humidity | 0～95% | | |
| Moisture location category | 4K4H | | |
| Max. operating altitude | 2000m | | |
| Protection degree | IP65 | | |
| Environment category | Outdoor & indoor | | |
| External environment pollution degree | Grade1、2、3 | | |
| Topology | Transformerless | | |
| Night power consumption(W) | <1 | | |
| Cooling | Natural Convection | | |
| Noise emision(dB) | <25 | | |
| Display | 4.0'' LCD | | |
| Communication | USB2.0 ; RS485 or WiFi | | |
| Standard warranty(years) | 5/10/15/20/25(optional) | | |

*It is recommended that the total peak power of PV strings should not exceed 130% of maximum DC power of inverter listed in the table.



Note

Overvoltage category definition

Category I : applies to equipment connected to a circuit where measures have been taken to reduce transient overvoltage to a low level.

Category II : applies to equipment not permanently connected to the installation. Examples are appliances, portable tools and other plug-connected equipment;

Category III: applies to fixed equipment downstream of and including, the main distribution board. Examples are switchgear and other equipment in an industrial installation;

Category IV: applies to equipment permanently connected at the origin of an installation (upstream of the main distribution board). Example are electricity meters, primary overcurrent protection equipment and other equipment connected directly to outdoor open lines.

Moisture location category definition

| Moisture parameters | Level | | |
|---|---|---|---|
| | 3K3 | 4K2 | 4K4H |
| Temperature Range | 0~+40℃ | -33~+40℃ | -20~ +55°C |
| Humidity Range | 5%~85% | 15%~100% | 4%~100% |

Environment category definition

Outdoor : the ambient air temperature is -20~50°C, Relative humidity range is 4 % to 100 %, applied to PD3

Indoor unconditioned: the ambient air temperature is -20~50°C, Relative humidity range is 5 % to 95%,applied to PD3

Indoor conditioned: the ambient air temperature is 0~40°C, Relative humidity range is 5 % to 85%,applied to PD2

Pollution degree definition

Pollution degree 1: No pollution or only dry, non-conductive pollution occurs. The pollution has no influence.

Pollution degree 2: Normally only non-conductive pollution occurs. Occasionally, however, a temporary conductivity caused by condensation must be expected.

Pollution degree 3: Conductive pollution occurs, or, dry, non-conductive pollution occurs which becomes conductive due to condensation which is expected.

Pollution degree 4: Persistent conductive pollution occurs, for example, the pollution cause by conductive dust, rain and snow.

## 7 Certificates

westernpower **VDE-AR-N 4105 IEC62109-2 EN50438 NRS097-2-1 RD1699 MEA&PEA**